THE MAC Flyer

FEBRUARY 1987

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THE MAC Flyer

For Greater Safety in MAC Air Operations

February 1987 | MACRP 127-5 | VOL XXXIV NO. 2

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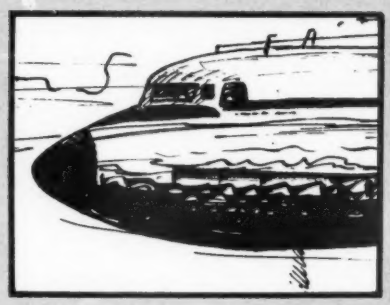

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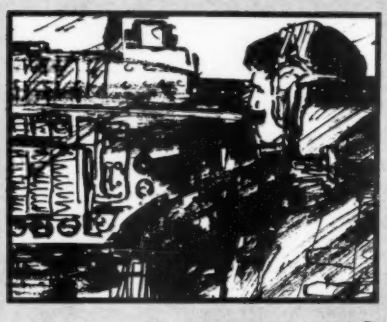

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The MAC Flyer is published by the Director of Safety, Military Airlift Command. The contents are informative and not regulatory or directive. Names of people and places in mishap stories are representative and not necessarily of the aircraft or equipment involved. Information in any article may not be construed as incriminating under Article 31, UCMJ.

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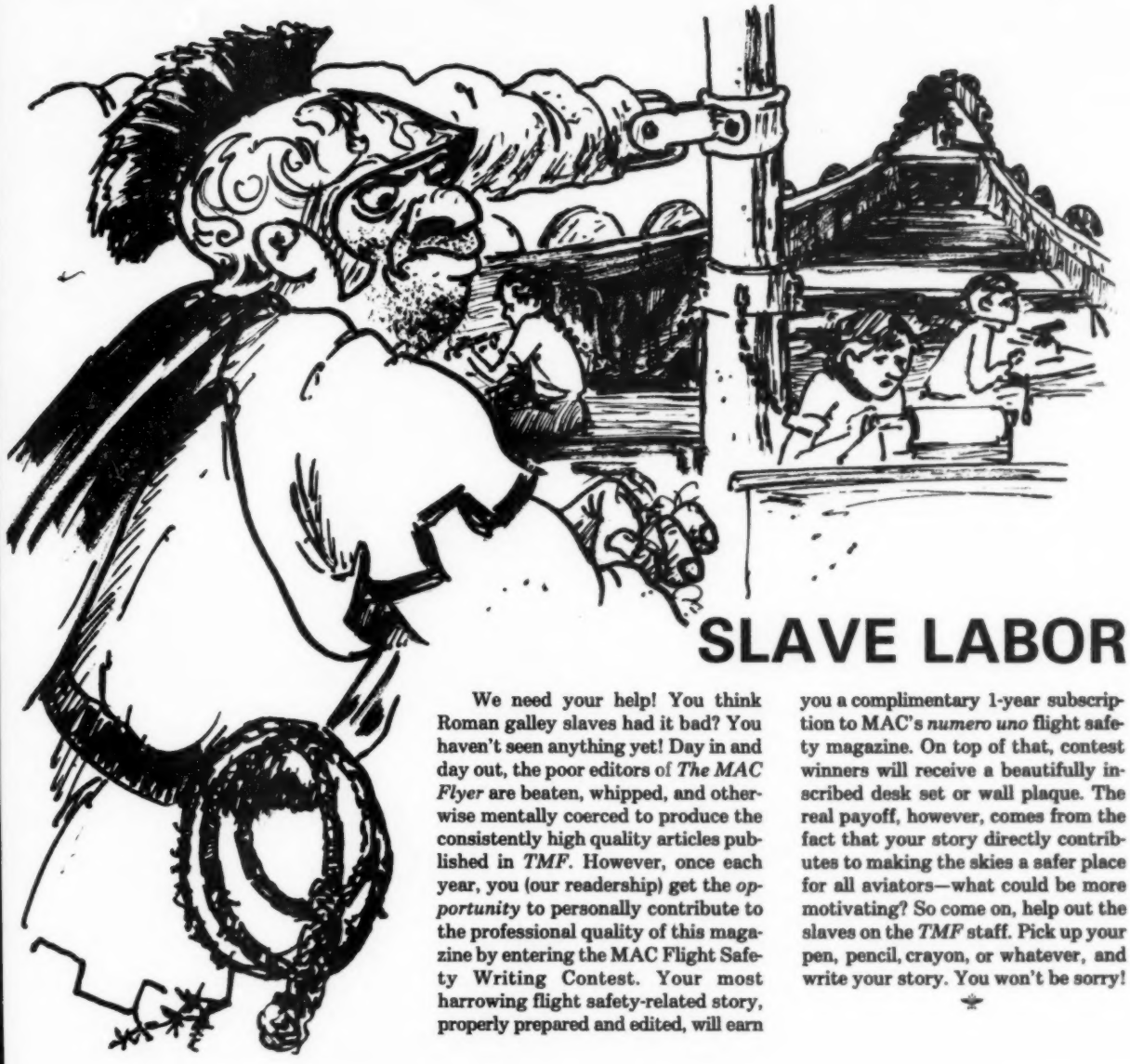


SLAVE LABOR

We need your help! You think Roman galley slaves had it bad? You haven't seen anything yet! Day in and day out, the poor editors of *The MAC Flyer* are beaten, whipped, and otherwise mentally coerced to produce the consistently high quality articles published in *TMF*. However, once each year, you (our readership) get the *opportunity* to personally contribute to the professional quality of this magazine by entering the MAC Flight Safety Writing Contest. Your most harrowing flight safety-related story, properly prepared and edited, will earn you a complimentary 1-year subscription to MAC's *numero uno* flight safety magazine. On top of that, contest winners will receive a beautifully inscribed desk set or wall plaque. The real payoff, however, comes from the fact that your story directly contributes to making the skies a safer place for all aviators—what could be more motivating? So come on, help out the slaves on the *TMF* staff. Pick up your pen, pencil, crayon, or whatever, and write your story. You won't be sorry!

THE RULES

The 1987 MAC Flight Safety Writing Contest is conducted according to MACR 900-3 and these rules. All entries must be original, unpublished and postmarked no later than 31 March 1987. Stories must be between 1,000 and 3,000 words long (about 6 to 14 double-spaced typed pages). Poetry should be about 75 to 100 lines. Entries must contain an *aviation safety/mishap prevention message*. Manuscripts must be double-spaced, typed and submitted in two copies. Identify entries by title only and attach a cover sheet showing the author's name, address, duty phone number and unit. The cover sheet must contain a brief autobiography.

The contest is open to anyone. Entries qualifiying under the above rules earn their author a free one-year subscription to *The MAC Flyer*. However, contest prizes (desk sets and plaques) may only be awarded to military members and civilian employees of the Department of the Air Force or Air Reserve Forces. Other entrants may be selected for Honorable Mention in a special category. All winning stories will be published in *The MAC Flyer*. Entries should be addressed to:

Flight Safety Writing Contest
HQ MAC/IGFE
SCOTT AFB, IL 62225-5101

IF AT FIRST . . .

A success story, undaunted by a desperate situation.

by Mr. Roger Marchant
Australia

It was a night when all nature shouted "MAYDAY." The wind, unerring in its unpredictability, alternately gusted then abated, but always, it seemed, at 90° to both runways. The precipitation was not so much rain, but rather slanting strips of close-packed water, increasing, if that were possible, the overall sogginess of the field. The barometer, that notorious predictor of something or other, was remarkable for its lack of pressure. The cloud lay flat and heavy. In short, it was weather to gladden the hearts of simulator manufacturers and give them a corporate glow of contentment.

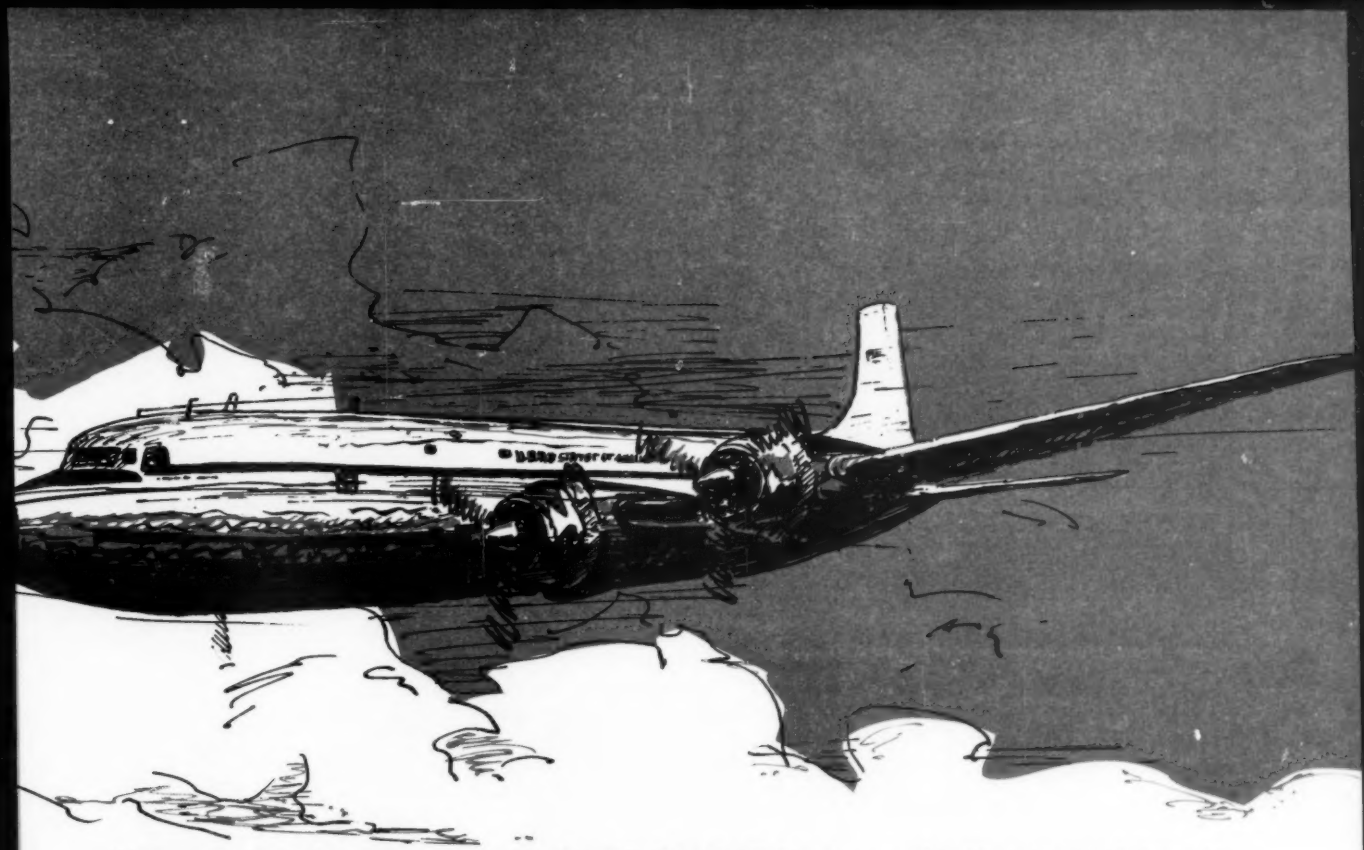
The Ops Officer shifted comfortably, deep in the old armchair just beside his desk, stretched himself luxuriously and reflected that one of the few rewards offered by night duty during a ground tour was the job of dispatching *other* poor devils into the predawn murk.

He therefore merely cocked a mildly commiserating eyebrow when the door burst open and an irate Major 'Redeye' Gustafson stormed in.

"What's happening, for heavens' sake? We're supposed to be off by two

HONORABLE MENTION 1986 MAC FLIGHT SAFETY WRITING CONTEST

(SPECIAL CATEGORY)



o'clock and the crew chief tells me it's all been put back."

"Ah, yes. Well, that's the thing, Red. The general feels perhaps a little nearer dawn might be a more suitable time to depart."

"Nearer dawn! Don't make no difference whether it's dark or light out there; we'll be in it before the damn gear is up!"

Major Gustafson sank heavily into the only other chair, dropped his head onto the desk and groaned. "You mean we've got to kill three hours? I could've stayed in bed."

The Ops Officer was silent for a while.

"It's a curious thing," he said at last, "it reminds me of a case in my early days, which parallels the present situation uncannily . . . ."

Redeye looked up, startled.

". . . but," continued the old man placidly, "as you have time to kill, you no doubt would want to hear the story from the beginning."

Apprehension clutched the major and he rose with alacrity, ". . . must get some breakfast and find the crew . . . ."

"The incident took place in Germany," continued the Ops Officer, attaching himself with a quiet firmness to Redeye's flight jacket, "and it concerned a pilot, just as yourself, though somewhat more junior, whom I shall name Lt. Ferdinand Cuthbertson III, just for the purpose of this tale."

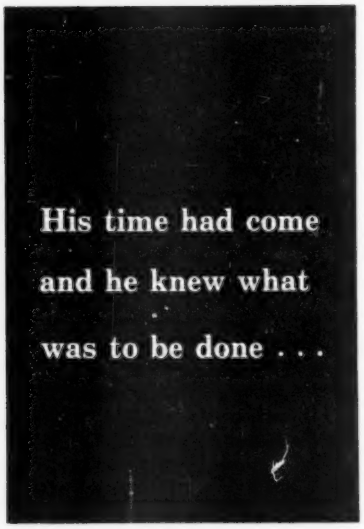
"Some other time, eh, Pop?"

The major was pushed gently back into his chair.

"Flying," resumed the Ops Officer, "is the Great Mystery. Considered by the hoi polloi to be a feat of technical brilliance on the part of pilot and aircraft alike, it is, as with all other cerebral achievements, capricious in the extreme. It bestows its favours with a total lack of appreciation for the necessity to observe the niceties of rank or station. Fellows bred in the best of circumstances, littered with social and academic pluses, can only waiver down the glide path, thence to make multiple touchdowns, causing their long-suffering captains many stops of the heart and tensing of the muscles. Others, with no obvious reason to feel pleased with their background or breeding, would not so much enter an aircraft, but rather put it on as if it were an old, comfortable overcoat and then, with the merest of encouragement, make the ship do just what's necessary, no more, no less, without bravado or drama.

"Ferdinand Cuthberson, III, (or Ferdy, as he preferred to be known), was a pilot of the first type described. His grandfather was rotten with money; Ferdy's father, in turn, had spent a lifetime running the business, but Ferdy wanted out. So, after the best of ivy-leagued education, he was taught to fly by the cream of civilian instructors. Thence to the Air Force, which, under duress, finally awarded Ferdy his wings. He was, however, carefully confined to the relative safety of a copilot's seat in the Base "Gooney," somewhere in Germany. To his credit, though, Ferdy aspired to be a pilot of the ability exemplified by type-two in my introduction. He tried, he really tried. However, the ex-college frisbee champion found the going hard. He was, alas, a goof pilot. Allowed pitifully few takeoffs or landings, he was perpetually out of practice, resulting in a captaincy potential that remained several points the wrong side of zero.

DUE TO A LACK OF PHOTO
BETWEEN TEXT AND BACK
DID NOT REPRODUCE WELL



"The thing that kept him going, though, against odds that would have caused Noah to embark at least four of everything, was his absolute cheerfulness. He exuded a joie-de-vivre of such constancy as to make all about him feel a small glow of happiness. His 'Good Day' and comradely pat on the back at breakfast after a hard night astoundingly made hangovers flee and restored the appetite. Ferdy was a sort of crew room Pollyanna, a friend to all.

"It was with friendly sympathy, therefore, that the squadron training officer had Ferdy in once more, for yet another little talk."

'Look, fella, you know how good you are at flying . . . .'

"Ferdy uttered a hollow groan. 'Yeah, don't tell me, Boss. I know! I simply can't get on top of it. It's like this: every time I think I've got it hacked, the old confidence goes.' "He tapped his head." 'It's all up here. I'm the perpetual copilot.'

"The training officer regarded him in near despair, casting around for something to offer the youngster. Then it came . . ."

'Why don't you concentrate on just one aspect of flying at a time? Perhaps trying to get everything together at once is what's proving so counter-productive.'

"Ferdy's cheerfulness came surging back; 'You mean like asymmetric or something?' "he suggested, with innocent zeal.

"The training officer blanched, recoiled two steps, then recovered with commendable control. 'Er, perhaps you'd better start with the 'something,' I think.' "Which is how Ferdy became the base expert."

"The base expert what?" muttered Redeye wearily.

The Ops Officer regarded the frustrated flyer benignly. "Just the base expert—that's what I said; that's what he was," he continued.

"After his latest chat with the training officer, Ferdy decided his first 'something' would be knowledge of their airfield, deep in the German countryside. Up to that time he had really only known the tower and approach frequencies and the dimensions of the (one-and-a-half) runways and he had been known to confuse these under the stress of actually holding the controls.

"Now, with a fierce determination Ferdy set to work. It wasn't long before his colleagues noticed the difference. A casual question in the crew room concerning perhaps the base fire service, would lead Ferdy into an exposition of capabilities, reaction times, types and fire-suppressants. The same diligence was applied by the erstwhile clown prince of copilots to all aspects of his home base.

"Ferdy was as if drunk with knowledge—there was nothing, but nothing, he didn't know. Even the captains he flew with regarded Ferdy in a different light. He was someone worthy of consideration, he was an *expert*.

"Chaps got into the habit, when asking Ferdy for any information relative to operations about the base, of stipulating '. . . in twenty words or less, please!' In fact, it was only his innate sunny disposition that prevented Ferdy from becoming a bore.

"It was," he continued, "a night like this that found Ferdy giving his base commander moral support from the Gooney's right-hand seat, while the CO, wondering why he had ever thought flying was a good thing, was fighting his way through the murk and round the pattern on his monthly refresher. It was, the colonel reflected grimly, never like this on the old fifty-third.

"Both Ferdy and his captain, therefore, were ideally placed to hear Air Force One come up on Guard, calling one engine out. Not only that, but there was just the merest suggestion of fire, out there in number four."

Redeye was well awake by now.

"When Air Force One made his call the whole frequency cleared, everyone shut up tight. The whole world, it seemed, was listening."

'This is Air Force One. We don't think we should try for Frankfurt or even Bonn . . .' There was a slight pause, then, 'Sir, we feel we oughtta get this ship down just as soon as we can.'

"The captain's voice was cool,

OTOGRAPHIC CONTRAST
ACKGROUND, THIS PAGE
ELL.

calm and collected, sufficient to send shivers of apprehension down the spines of those with direct responsibility for the flight, while conjuring in other minds images of TV reports or, even worse, elections."

The Ops Officer reached back to the shelf behind, took his tobacco pouch and started to tamp, with great deliberation, his old corn-cob.

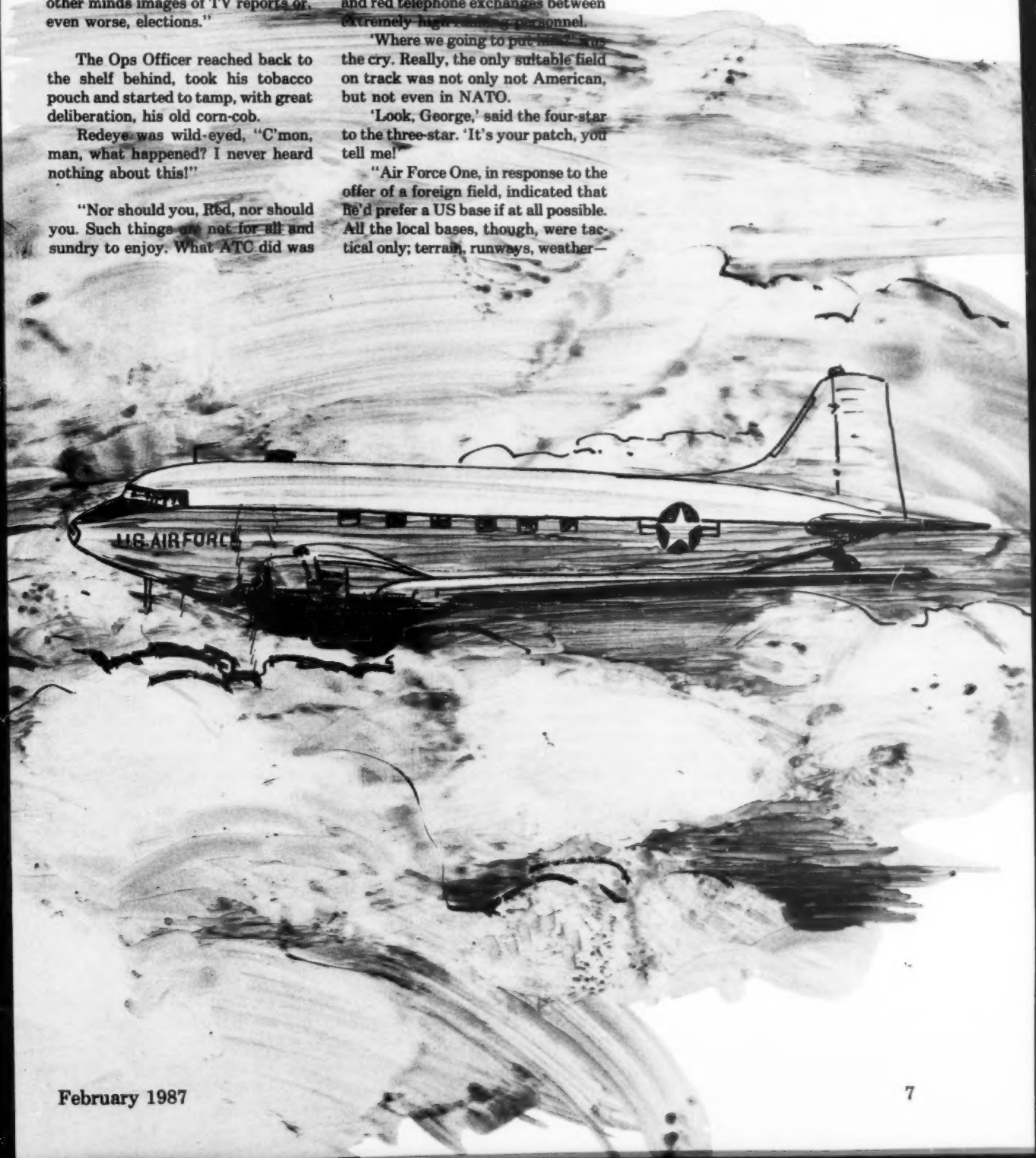
Redeye was wild-eyed, "C'mon, man, what happened? I never heard nothing about this!"

"Nor should you, Red, nor should you. Such things are not for all and sundry to enjoy. What ATC did was put Air Force One on select three, thus effectively restricting the radio transmissions to discrete military control. Then there began a flashing of signals and red telephone exchanges between extremely high [illegible] personnel.

'Where we going to put him?' was the cry. Really, the only suitable field on track was not only not American, but not even in NATO.

'Look, George,' said the four-star to the three-star. 'It's your patch, you tell me!'

"Air Force One, in response to the offer of a foreign field, indicated that he'd prefer a US base if at all possible. All the local bases, though, were tactical only; terrain, runways, weather—



all legislated against an all-or-nothing asymmetric approach. But Air Force One was committed to land. '. . . We don't want to carry this engine any longer than necessary.'

"Thus was the scene set for the flowering of Ferdy. His time had come and he knew, without a scintilla of doubt, what was to be done. It was an emotion so alien, so new to the erstwhile stranger to success, that Ferdy felt as if the sun had burst through the filthy black night and was bathing him in its brilliant radiance.

'Just leave it to me, Boss!' he shouted to his embattled captain. 'We'll get Air Force One down okay!'

"The colonel gazed across the flight deck in astonishment. Ferdy's eyes sparked; he exuded confidence and, turning a beam of triumph upon the bemused base commander, he seemed even to grow in stature as he sat straight and eager, in the old Gooney's right seat. 'Sit back, sir. Have this one on me,' "and taking the hand mike he called base."

'Approach, this is 37. Tell Air Force One we'll take him.'

"There ensued a slight pause as the controller regained his equanimity. '37, you sure? Request you confirm that's the colonel order.'

"The base commander glared at Ferdy in fearful amazement, 'What the hell do you mean? We don't have the weather, we don't have the wind, and we're in the middle of some very nasty hills.'

"Ferdy grinned back in reassurance. 'Fear not, oh my leader! Okay, so the wind's off the main runway, but see, the front's just gone through and now it's 40 knots, straight and true down the short strip, which, I'm sure you'll remember, is uphill. I've calculated Air Force One's probable weight—he should stop with six hundred feet to spare. No sweat!"

'Oh yeah,' snarled the near apoplectic senior aviator, 'and what about the approach? It's going to be as bumpy as all hell down there, and he'll have to put it down on the numbers. He'll only break out at 300 feet. He'll never make it.'

"Ferdy's confidence, though, was unabated. 'He wouldn't want to land within a thousand feet of the end of it anyway, boss, but that don't signify—with these conditions he'll stop, no problem . . .' and here the right-hander's assurance was all-embracing, 'don't forget we got the Jiggler on GCA tonight . . . .'

"The Jiggler—MSgt. William Jigson, had worked with radar since the first multi-tubed approach was flown in the western Arizona sunshine, half a lifetime away. 'And,' continued Ferdy, 'don't forget the X74s are on standby.' These were the best, by far, of any fire fighting equipment. The CO relaxed a little more. He knew the Fire and Rescue Service was the best around. So the colonel made his decision."

'Air Force One, this is Tempo 37. I am the base commander. It should be approximately eight zero miles on your direct track. The field is available and we'll get you in okay sir, if you wish.'

"The return transmission was heavy with relief." 'Thank you, 37, we're on our way down, calling your radar now."

The Ops Officer leaned forward to tap out his pipe before continuing. "The rest," he said, "is history. Well, limited history, anyway. Air Force One was vectored to a straight-in approach which, though on the bumpy side, was completed with minimum fuss and maximum efficiency.

"In all, it was what another air force might have deemed a rather good show. The CO and Ferdy followed the VIP ship into the field, the old Gooney under significant power on short final, but otherwise without event. By the time they had left their aircraft the Presidential entourage had been whisked off to the base commander's residence, where American comfort and shelter were waiting."

'Welcome, Mr. President. Sorry we weren't around to greet you.'

"The President, his back to a roaring log fire, coffee in one hand and a cupcake in the other, regarded the CO with benevolence. 'Not at all, Colonel. From what I've heard it was your initiative that got us out of an embarrassing situation. Well done!'

"Now the CO had many faults, widely canvassed around the base by those who had crossed him, but the acceptance of misdirected praise was not one of them. 'No sir, not me. Lieutenant Cuthbertson, sir, my copilot,' and here he pushed a blushing Ferdy to the fore. 'Lieutenant Cuthberson, it was his idea. He put it all together, He's the base expert."

"The Great Man looked hard at Ferdy. 'Old Douglas Cuthbertson's boy?' he asked. Ferdy, overcome, could only nod. The President, whose fame was in no small measure attributable to his ability to size up instantly a fellow's position, prospects and possible usefulness, crooked a finger at the base commander."

'I want,' he murmured to the shell-shocked colonel, 'this man on my personal staff!'

"And those of us who know him," wound up the Ops Officer, "know that Ferdy never changed his sunny disposition."

Redeye Gustafson, seeing at last an end to the tale, and therefore his escape, sought to wrap it up. "Middle sixties, eh? Well, I was just a young shaver then; you mean he's still with us?"

Pop smiled and nodded.

"Well, what's he doing now?"

As the Ops Officer was about to reply the telephone on his desk rang loud: "Yes, oh, okay, yes, he's right here, I'll tell him now." He looked up at the major, who was poised, ready to flee, and his smile became a little more beatific. "Hate to do this to you, Red, but it's off 'til midday. The general thinks the weather'll be more suitable then . . . ."

Redeye exploded. "The general? The general? You mean . . . !" Then he stopped, open-mouthed in mid-flow as an awful thought struck home.

The Ops Officer nodded again, gently and kindly. "I did say, didn't I, that Ferdy Cuthbertson wasn't his real name . . . but the rest is right down the line!"

Then did Redeye give truth to his sobriquet and his treatment of the Ops Room door as he left ensured it never closed properly again. *MORAL TO THE STORY:*

(1) There is, in aviation, no such thing as too much knowledge, and

(2) Many indeed are the benefits of such knowledge.

Flying-Hour Milestones

10,000

MSgt Willie Jackson, 335 MAS

5,000

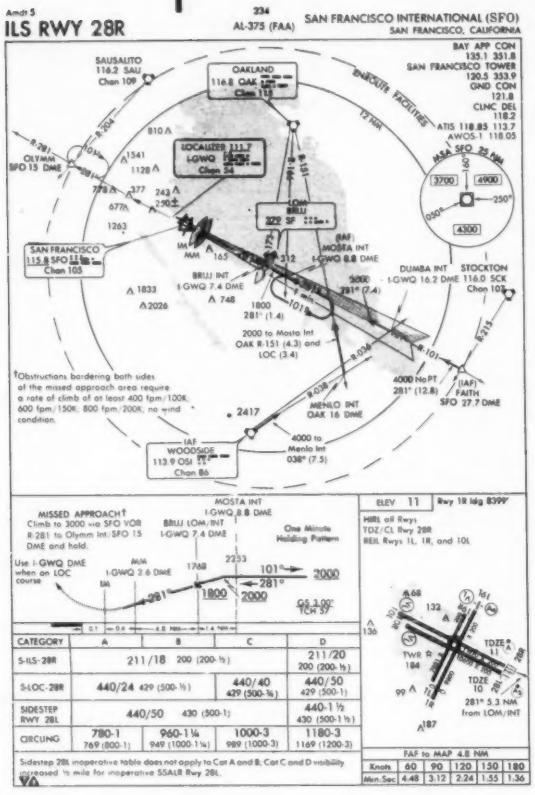
Lt Col Michael W. Beard, 772 TAS
Lt Col David F. Deiterich, 180 TAS
Lt Col Norman B. Edwards, 335 MAS/CC
Lt Col William F. Horton, 772 TAS
Lt Col Jared P. Kennish, 143 TAG
Lt Col Steven M. Nutter, 772 TAS
Lt Col Willard F. Tannehill, 758 TAS
Maj Emmet D. Anderson, Jr., Det 1, 435 TAW
Maj Ronald Cassano, 335 MAS
Maj Eric W. Childress, Det 1, 435 TAW
Maj Paul G. Tucker, 335 MAS
Maj Joseph P. Ward, 335 MAS
Capt Mark R. Hutchings, 3 MAS
SMSgt Craig S. Johnson, 53 MAS
SMSgt John T. O'Neal, 96 TAS
SMSgt Lewis F. Watts, 335 MAS
MSgt James E. Casey, 335 MAS
MSgt Marc L. Gilbertson, 96 TAS
MSgt Edward L. Knox, 3 MAS
MSgt Gordon L. Maier, 96 TAS
MSgt James J. Schumacher, 41 TAS
MSgt Howard L. Williams, Jr., 167 TAS
TSgt Guy M. Davis, 772 TAS
TSgt Timothy G. Griesa, 3 MAS
TSgt Terry A. Parker, 94 TAW
TSgt Terry L. Wright, St., 6 MAS

2,500

Maj Thomas R. Friers, Det 7, 37 ARRS/CC

Ranks and units are those at time of award. See MACR 900-3 for details on how to apply for your own milestone award.

TMF INSTRUMENT QUIZ



1. **Sunglasses** - Checked

2. **Tanning Lotion** - On

3. **Flip Flops** - On and strapped

4. **Bank Card** - Armed

5. **Guide to Valley Girl Lingo** - Fer Sure!!

Now that all appropriate checklists are complete, it's time to start thinking about all those great things you're going to do during your mid-winter California vacation. However, before you get too far ahead of yourself California Dreamin', let's take time to get there safely. To do this, the *TMF* magic carpet is transporting you to the cockpit of your very own MAC, multi-engine, category C, fixed-wing aircraft. You are the AC and a quick glance at the onboard nav equipment shows you to be over northern California. Destination, S-A-N F-R-A-N-C-I-S-C-O (specifically, San Francisco International Airport).

The weather forecast for your ETA plus or minus 1 hour is: 600 feet overcast, ½ mile visibility with light rain and fog (guess you didn't need the tanning lotion and sunglasses after all). Winds are out of 360° at 10 knots. You're planning to fly the ILS runway 28R approach. Let's check your knowledge to discover if you can successfully negotiate this approach in time to have dinner on the Wharf.

1. You are flying inbound to the SFO VORTAC on the 245° radial and are presently at 20 DME. What is the minimum safe altitude for your present location?

   a. 4,900 feet.
   b. 4,300 feet.
   c. 3,700 feet.
   d. Unable to determine from available information.

(Use the following information to answer questions 2 through 8.)

During preflight planning for this sortie, you filed to MOSTA Intersection. However, you accepted an Oakland Center clearance change directing you to your new clearance limit—the IAF located at the WOODSIDE VORTAC. Center gave you an expect further clearance (EFC) time fo 40 after the hour. You are now flying direct to WOODSIDE on the OSI 300° radial and Center just handed you off to Bay Approach Control. Just as your copilot was changing frequencies, "Thumbs" Jorgensen (your ACM) managed to spill his coffee on the comm panel. Now you can't even pick up the Golden State Warriors' game—you've lost total communications.

2. How can you inform ATC you've experienced lost communications?

   a. Squawk 7600 for 1 minute.
   b. Squawk 7700 for 15 minutes.
   c. Squawk 7700 for 1 minute, followed by 7600.
   d. Both a and b are correct.

3. Suppose you arrive at WOODSIDE at 30 after the hour. You should _____.

   a. initiate the approach. Man, this is an emergency.
   b. hold over the WOODSIDE VORTAC, using your inbound course to WOODSIDE as the holding course, right turns.

c. hold over the WOODSIDE VORTAC, using your inbound course to WOODSIDE as the holding course, left turns.

d. hold over the WOODSIDE VORTAC, using the OSI 038° radial outbound as the holding course, right turns.

4. You're now in a 1-minute holding pattern at WOODSIDE VORTAC awaiting your EFC time. You've just turned outbound in the pattern when you look at your trusty 8-day clock and notice it is now 38 after the hour. Assuming you wish to use a standard rate turn (3° per second) and a no-wind condition, you should _____

a. press-on with your 1-minute holding pattern. No adjustments are necessary.

b. continue to batter and rebuke "Thumbs."

c. limit your outbound leg to 30 seconds.

d. reduce your true airspeed throughout the pattern.

5. Finally, you've arrived at your EFC time. You're over WOODSIDE VORTAC and your loadmaster, "Muscles" McGurski, has successfully palletized "Thumbs." You should now _____

a. turn on R-036 and proceed to DUMBA intersection to intercept the ILS approach course.

b. turn on R-038 and proceed to MENLO intersection.

c. turn to proceed direct to MOSTA intersection.

d. proceed direct to the locator outer marker.

6. After crossing WOODSIDE VORTAC, to what altitude should you descend?

a. 3,000 ft.

b. 2,000 ft.

c. 1,800 ft.

d. 4,000 ft.

7. After passing MENLO intersection inbound, you should _____

a. proceed to intercept the localizer course VIA the OAKLAND 151° radial.

b. proceed direct to MOSTA intersection.

c. proceed direct to FAITH intersection.

d. relinquish the controls to your copilot and let him figure it out.

8. You've now reached MOSTA intersection. What does the holding pattern, depicted in heavy blue, signify and, further, are you required to fly this procedure in this case?

a. The blue line indicates holding in lieu of procedure turn and you're not required to fly the procedure.

b. The blue lines signify arrival holding and yes, you must fly the pattern.

c. The heavy blue color indicates holding in lieu of procedure turn and, by the book, you must fly it.

d. The heavy blue lines indicate missed approach holding and you shouldn't fly it.

Well, will wonders never cease! Through the magic of organic circuitry the once coffee-soaked wires in the comm panel have repaired themselves. You've regained communications with Bay Approach Control and "Muscles" can continue listening to the Warrior's game. You've just passed MOSTA intersection and approach confirms you're clear for the ILS RWY 28R, Sidestep RWY 28L approach at San Francisco.

9. What minimum weather must be present in order to fly the approach?

a. 500 ft ceiling *and* 1 mile visibility.

b. 1 mile vis is all you need.

c. You must have circling ceiling *and* visibility minimums (1,000 ft and 3 miles).

d. You may fly the approach if weather is above circling visibility minimums (3 miles vis).

10. Suppose you were flying the same approach with the same clearance, only this time in a Category A helicopter. What minimum weather must be present to fly the approach?

a. ½ mile visibility.

b. ¼ mile visibility.

c. 500 ft ceiling *and* 1 mile visibility.

d. 500 ft ceiling *and* ½ mile visibility.

What do you know! Down safe again and with plenty of time to spare to make it to the Wharf with an intermediate stop for libations on the Embarcadero. If you found the questions challenging—Good! Better to brush-up early on some of the situations the MAC mission can present than to wait until it's too late. Besides, San Francisco is a great place to visit, regardless of how tough it is to get into. Have a good time! ✈

THE ANSWERS

1. c, IAP MSA chart
2. c, FLIP In-flight Handbook
3. b, FLIP In-flight Handbook, FLIP General Planning
4. c, AFM 51-37
5. b, IAP
6. d, IAP
7. a, IAP
8. c, IAP
9. b, Ref: AIM Basic Flight Information and ATC Procedures, para 380 & 381
10. a, Ref: same as in question #9

TMF Flyer Call

It's been another good year for MAC in the safety arena. With *four* Class A (over $500,000 or a fatal injury) and *zero* Class B ($100,000-$500,000) mishaps yielding a combined rate of .52 per 100,000 flying hours, 1986 matched 1985 for the second lowest mishap rate on record.

However, while these numbers appear great on the surface, their significance pales in light of the human cost they represent. Thirteen MAC crewmembers and four passengers died in three of these mishaps. Even more tragic, in two of the three fatal mishaps, clearly identifiable causes showed them to be absolutely *preventable*. Someone in the chain failed, and a husband, father, son, or daughter returned from a mission for the last time, this time in a flag-draped coffin. There should be no greater motivation to do a safe and professional job than to remember the effect on those who love and depend on us if *we* don't return from a mission.

That's why, in 1987, we at *TMF* are going to do everything we can to help you, supervisors, commanders, and flight safety officers prevent mishaps.

We ask you to do the same.

TCW

Safety Workhorse—The FSO

Part II: Hazard Reports

by Lt. Col. Michael G. May
and
Capt. Donald L. Rosenberry

You're probably wondering why we decided to start this series with the USAF Hazard Reporting Program. The answer is pretty simple—hazard abatement exemplifies, in a single program, the very nature of safety. Be it flight, ground, explosives, or any other category, all safety specialties share the concept of keeping the environment free of danger. The Air Force Hazard Abatement Program spells this out clearly. The program is straightforward and applies to all people and environments associated with the Air Force. It is a means to *do* something about problems. It's based on the idea that once a "hazard" is identified, there are three ways to approach removing the danger associated with that. In decreasing order of preference, the hazard can be: removed (elimination), reduced (protection), or highlighted (warning). We're going to spend the next few pages talking about hazards, I presume this would be a good time for the requisite Air Force definition.

"A hazard," as AFR 127-2 defines it, is "an act, condition, or circumstance (not a part of a reportable accident, incident, or deficiency) which jeopardizes the safety of personnel, weapon systems, or equipment." The parenthetical clarification highlights the Air Force use of the system—to abate hazards before a mishap. In other words, the idea is prevention, not reaction. The AF Form 457, USAF Hazard Report (HR) can be submitted by any military or civilian assigned or attached to the Air Force, or under contract to the Air Force. This leads us to the means of using the form. This shouldn't be too much trouble to remember, but if it is, don't worry, every well planned safety bulletin board

will have the form and an explanation of its use posted (hint, hint).

Probably *the* most misunderstood point about hazard reports is what they're meant to accomplish. The erroneous view is often phrased something like "If you don't . . . , I'll file an HR on you." This represents what we call the "hammer" philosophy, which is *not* what hazard reports are for, as we'll explain. The fallacy of using a hazard report to "hammer" someone lies in its routing after submission. Most likely, the person the hammer is aimed at is going to end up answering the HR.

Here's one view of a successfully processed flight hazard report. Once you (The FSO) get the Hazard Report on problems with a flight widget, the system is turned on (and you thought this'd be dull). This first step is pretty important. You, as "the safety office," are going to pass judgement on this report and determine its validity. It's real important to avoid the "disapproved resubmit in 90 days for final disapproval" attitude. Keep in mind how important something has to be for *you* to sit down and write it on paper and submit it for resolution. Someone found the problem important enough to act. Keep in mind you may have to get out of the office and take a look yourself to determine validity. Let's assume you found the hazard a valid concern. What next? There are a number of options; one we've found effective is to consolidate hazard reports submitted on a weekly/monthly basis and summarize the issues referenced in the valid hazards in a cover letter to the commander reminding him/her this is the initial submission of a hazard submitted for his information. This allows the commander a thumbnail view of the hazard reports *his* unit is submitting, prepositions the areas *his* safety office will be looking at, and permits him/her to offer advice/assistance to the investigation right at the beginning. The major value is it keeps the commander informed in a timely manner. The obvious value to the investigation and investigator of this smooth point comes when you respond to the originator of the report. Naturally, as a superbly efficient safety officer with lots of time on your hands, you respond in writing to the originator with a personalized letter explaining you've received the report, found it valid, and entered it in the processing system. Attached to the letter, the originator finds a copy of the report with the suspense date and control number emblazoned in the appropriate blocks. In addition, the originator sees the initials of his/her commander conveniently located on the upper right/left corner (or wherever). This simple ploy develops considerable credibility for the program, not to mention avoiding the plague of all staff work—surprise. This is administrative, of course, but well worth your time.

With the advent of word processing software, it is now a much simpler matter to respond to each originator

USAF HAZARD REPORT

HAZARD REPORT NO. *(Assigned by Safety Office)*

I. HAZARD *(To be completed by individual reporting hazard)*

TO: CHIEF OF SAFETY *(Organization and location)*

FROM: *(Optional - Name, Grade and Organization)*

TYPE - MODEL, SERIAL NUMBER, A.G.E./MATERIAL/FACILITIES/PROCEDURE OR HEALTH HAZARD INVOLVED

DESCRIPTION OF HAZARD *(Date, Time, SUMMARY - Who, What, When, Where, How)*

RECOMMENDATIONS *(Orignator - Not Mandatory)*

DATE RECEIVED	REVIEWING PERSON *(Typed or printed name, grade, and position or title)*	SIGNATURE	DESIGNATED OPR
DATE FORWARDED			SUSPENSE DATE

AF FORM 457 SEP 73 PREVIOUS EDITION IS OBSOLETE

personally, and it's important to do it! By storing "skeleton" form letters with the regulation driven comments in place and the openings for names, dates, control numbers, and a blank paragraph for *specific comments about the report*, the "form letter" can be a powerful asset without too much cost in time. Along with providing a real means to communicate with the person originating the report, it's an excellent forum for explaining any problems you anticipate in resolving the issue. You're way ahead of the game if you explain difficulties up front. Not only do you prevent the originator from growing disinterested in or suspect of the system, you may find the originator can help. It's quite understandable the person writing up the hazard may have a great idea how to solve the problem or eliminate the hazard, but didn't write it down, not wishing to "impose" their ideas on your area of expertise. If they only knew!

Hey! What an idea. We'll say something to the crewmembers not occupying a safety slot. For all non-safety people who contemplate submitting a report: If you think you have an answer, include it in the report! The only thing that happens if your idea isn't adopted is— you're idea isn't adopted. That and you get a com-

plimentary explanation when the report is closed out. While I have you on the line here, there's another issue we'd like to discuss—vindictive HRs.

A vindictive hazard report elicits defensive responses. Imagine yourself as the maintenance officer receiving a hazard report that begins "Typical of the shoddy maintenance at . . . ." or if you're a support person, imagine yourself the operations officer receiving a hazard report beginning "As usual with Prima Donna crewmembers . . . ." There's a message here. Hazard reports written in this vein will only nurture the natural protective instincts supervisors must have for their people. The result is an answer which concentrates on refuting the slung mud while only offering cursory attention to the real problem, if that. This won't get us anywhere and actually detracts from the hazard abatement program, which can actually fix problems—sometimes big ones.

To get by these kinds of difficulties, should you receive this kind of HR, you have a couple of options that work well. One is to have an education program that keeps people focused on the real issues in a hazard report. You could attach a cover letter to the answering "OPR" explaining the real issue and asking indulgence on the part of the originator; or plan "B,": you can "edit" the submitted report. That's right, you can read the report, extract the real issue, type it up yourself, and use this new, revised edition report for fixing the problem. This appears to work in two ways. In addition to solving the emotionalism problem at the OPR end, the edited version can be attached to the response letter to the originator, a powerfully effective education tool.

Now, you've all made it through the initial submission phase just fine; what next? Well, some form of follow-up must keep happening, or the problem can stagnate. This is especially critical when the problem is complex or the fix, while identified, is long-term, or the problem requires considerable investigation. This is why the MAC Form 151 was born. The MAC Form 151 provides a great place to work. There aren't any specific guidelines as to what has to go on the form. It is *really* there for FSOs to use while working the hazard. This is a good place to log phone calls made, opinions presented, the letters sent and received, even in cryptic form (as long as you can use them). When Forms 151 are used, anyone in the office will be able to keep the system moving, be able to respond to questions, or take actions on the hazard. It's also a ready made suspense system, prompting the next step while fresh in your mind, even if this next step is contingent on action you *know* won't happen for a while. The goal is to keep abreast of the action, and keep all the involved parties informed, with as little time expenditure as possible.

Keeping the 151 updated will go a long way toward keeping the system efficient. For instance, if you know the hazard isn't going to be solved any time soon, the 151 is the place to suspense it for a while (with the requisite letter to originator explaining why and any interim measures). It's a good idea to have a forum to keep the boss updated on the status of the HRs. After all, you brought it to his/her attention right up front. Keeping the boss informed can help you solve problems which might crop up along the way.

But let's assume your hazard report is making steady progress, though it'll take more than a month to resolve. A monthly update letter (thank goodness for the word processor) to the originator can ensure great confidence in the hazard abatement program and the safety office, *something you want to nurture at every turn*. Efficiency is important, so is a thorough job. One of the toughest things to do is accurately report an investigation, especially if the event is an act instead of a physical obstruction or danger.

The best investigations happen right after the incident, another reason to efficiently handle the reports. If you have a system to inform the safety officer "immediately on receipt" of the various kinds of information necessary, HRs make a good inclusion to the list. True, you'll probably get calls at odd hours on items totally devoid of time constraints, but just as in incident reports, HATRs, and other time sensitive issues, it's much better to get many unnecessary calls than to miss the one requiring immediate action.

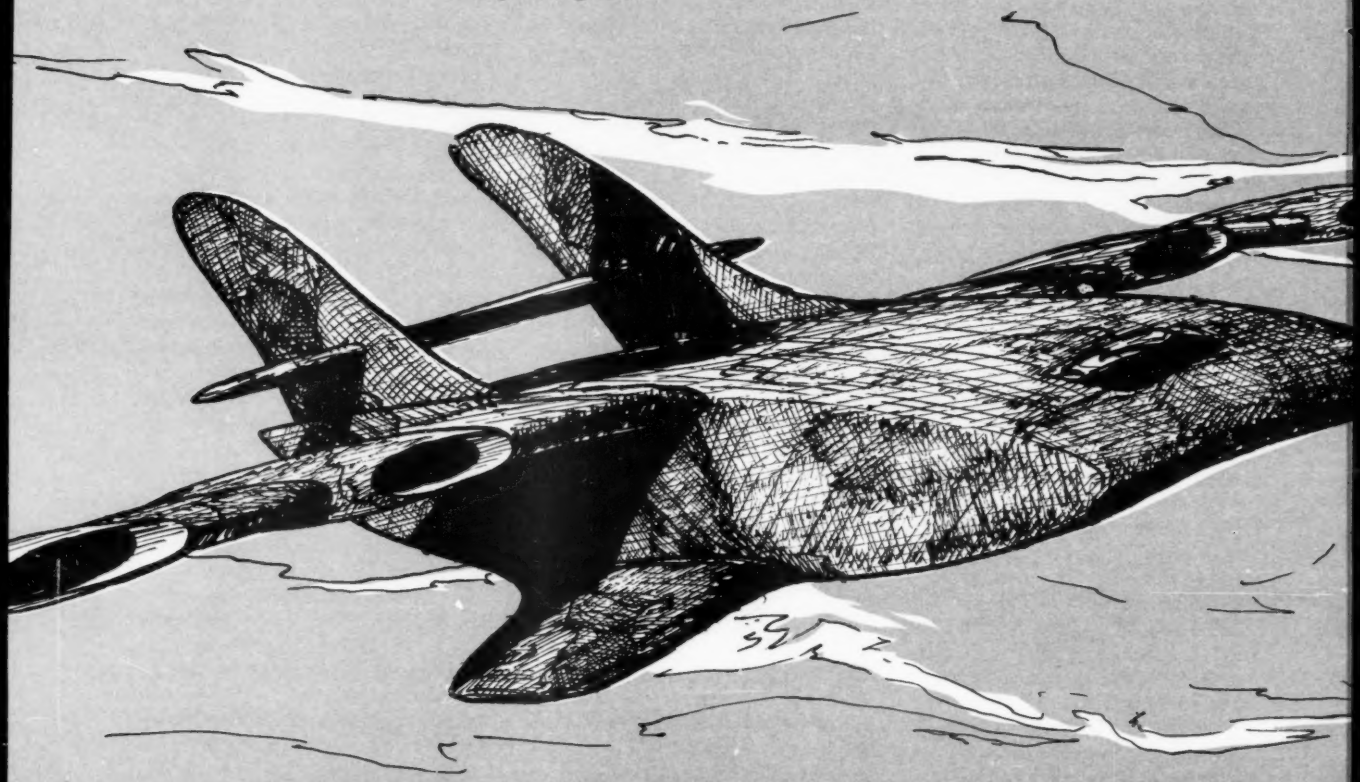
I know, you're all picking up the telephone to call and tell us there *are* time-sensitive HRs. When it comes to those weather-related HRs, you'll be very happy you took all those unnecessary calls; your payoff comes when the odd HR that does require immediate action is handled with the alacrity the program deserves. Safe again. Now, what do we do when the report is investigated and responded to by an appropriate OPR (FSO-assigned) and returned. The first thing to do is take a real close look at the report for accurate, thorough investigation. Remember, when this report hits the streets in the form of an answer, it'll have the boss' initials and your name branded on it.

If you let the OPR off with a cursory answer, you'll have defeated the purpose of the report, dealt yourself some bad PR, and worse yet—failed to abate the hazard. This doesn't mean re-investigate the incident. You'll know if there's any smoke floating around. A good investigation is easy to spot, regardless the topic. Likewise, an appropriate response stands out, they're the ones that *do* something to *fix* a problem. If the response is inadequate, the buck stops with you. Tactfully address the areas you're concerned with and resubmit to the OPR. To carefully evaluate the answer you may again find you must leave the office. Yes, the most important part of any investigation here unfolds—*follow up*. When the OPR says the conditions are resolved, repaired, changed, or otherwise fixed, *you* need to make sure it really worked. You might want to wait a couple days or a week, then go check it for yourself, but don't let the check slip between the cracks. The small amount of time spent could save you an embarrassing response, with the resulting additional work to redo the fix. Also, it sounds more reassuring to the submitter when he reads of your positive follow-up results. Nobody said this would be easy. When you're satisfied with the answer, let the boss see the results. If you keep the loop closed, he/she will get used to having problems solved fairly, establishing a rapport and working system that'll help out everybody—you, the originator, and your boss. ✈

It Never Ends

Machines don't command, you do.

by Major Thomas C. Weinzierl
Supervising Editor



The North Carolina sun was already capable of frying eggs on the sidewalk as Maj. Rockwell "Rocky" Stone arrived his usual 30 minutes early for the day's training mission. Even after two years flying the C-31, he was still like a little kid with a new rocket skateboard. He just couldn't believe his luck and how much he loved his job. After seven years flying the aging C-17, he had been selected in 2027 for the initial cadre in the C-31, MAAC's (Military Aerospace Airlift Command) newest and first sub-orbital airlifter. If only his old UPT instructor could see him now. Capt. Wil Wright was an outstanding IP, although a little preachy. His favorite sermon was his "Don't Relinquish Command" lecture. Rocky remembered it well. "When you strap on an airplane, take command. Don't relinquish your command to an air traffic controller, a maintenance man, a black box, a marshaller, or your boss. They have a part to play in your mission, but *you* are in command; *you* have the ultimate responsibility for the safe conduct of the mission." Rocky always thought those were good words, but he just wished Wil could see the C-31. Why, it could outrun some old-line fighters and cruise at altitudes undreamed of not long ago.

The airplane had more "gee-whiz gizmos" than he thought possible. Computers aided the pilots in every way imaginable. They let him concentrate on getting the goods where they were needed, on time, without a lot of distracting minor problems or superfluous information. Why, the airplane's monitoring systems and redundancy had practically eliminated the stupid mishaps that used to plague C-5 and even C-17 drivers. Zero-zero autoland capability had eliminated duck-under mishaps and the G/AMS (Gear/Approach Monitoring System) made the ultimate pilot screw-up, the gear-up landing, a remnant of aviation's stone age. G/AMS monitored all parameters of flight, such as altitude, airspeed, configuration, position (through the airplane's Laser Inertial Navigation System and Microwave Landing System), and lowered the gear if it decided the airplane was on approach to land. Another system, the Ground Obstacle Monitoring and Evasive Radar (GOMER), displayed potentially hazardous obstacles on both pilots' CRTs and, if necessary, reduced engine thrust to idle and applied the brakes. All in all, a real foolproof airplane that let the pilot concentrate on commanding the mission.

Rocky wasn't surprised to find his students already in the briefing room. Capt. Don Bedelman and Maj. Steve Jusinski were both capable, solid pilots. Don was one of the last to fly the now retired C-5B and Steve was another ex-C-17 type coming off a staff tour at Scott.

"Good morning, guys," said Rocky. "As you know, today we'll cover some new ground. We've done it in the simulator, so everything should be familiar to you. The first segment of the mission will be a high altitude personnel cylinder drop from 120,000 ft at 1.5 MACH. The drop point will be over Norfolk, the DZ will be Pope number seven. We'll orbit at the drop point and laser designate the DZ for the cylinder homing devices. We'll be near the limit for the designator so precise control of the orbit is an absolute necessity."

"The second segment" he continued, "will be a low-level, pop-up, powered platform drop at Little Rock. Then we'll RTB for about two hours of MLS, automated PAR, and some blind, blast shield-deployed approaches. That's the overall picture, now for the details . . . ."

After his usual thorough briefing and the normal preflight planning duties, Rocky and the other pilots headed down the hall to the APE (Aerospace Personal Equipment) shop. The new quick-don pressure suits were a snap to put on and the three pilots were soon on their way to the airplane.

As he approached the airplane, Rocky was impressed all over again. Completely computerized, hardened from the effects of electro-magnetic pulse, and with its low-observable technology and composite structure, it was virtually invisible to enemy radar. It could drop anything the Army desired with pinpoint accuracy.

CMSgt. Orville Stinson, the systems operator (a combination flight engineer, loadmaster and crew chief) was just completing his walk-around as the pilots arrived.

"How's it look, Chief?" asked Rocky. "Can't be late today, the FAA doesn't extend these high altitude drop corridor times very often."

"No sweat, Major. She's ready to go and the Special Forces troops are already on board."

Rocky stopped and looked at the Special Forces soldiers on his way to the flight deck. He just couldn't understand how anyone could allow himself to be sealed inside a cramped container resembling a round coffin and be blasted into semi-space, to fall within 500 feet of the ground, and rely

on a few small retro-rockets and a parachute to prevent certain death. The Army major in command looked up at Rocky, gave him a quick nod, and returned to his equipment. That guy looked right through me, thought Rocky, as a chill crept up his spine. He could feel the hairs stand up on the back of his neck. I'd hate to meet him in a dark alley, Rocky mused while climbing the last few steps to the flight deck.

"Wing position," challenged Rocky.

"Checked, Alpha One," responded Steve as the wing position indicator on the center panel CRT clicked into a full swept forward position.

"Thrust metering computer set at OAT +37°C, PA +573, winds 270/10, humidity 85%, runway available 12,400 feet, runway required 4,650 feet. Afterburner stage three selected. Not bad for a 950,000 lb airplane on a hot day. Before takeoff check completed."

"Tower, Race 11 ready for takeoff."

"Race 11, roger. Cleared for takeoff, Runway 26, maintain FL 600 until STARRY intersection, expect FL 1200 after STARRY contact departure on 122.2755 or 242.955."

Steve pushed the power levers forward and the 123,000 lb thrust United General Propulsion Technology engines spewed a 100 foot flume of pulsating blue flame. The C-31 roared down the runway, lifting off at precisely the predicted point.

After passing STARRY and climbing through FL 1000, Rocky spotted some contrails overhead. Must be some F-39s playing their games up at 200 grand, he guessed. Well, let them have their fun, we'll have ours.

"Ready for drop, check in." The Special Forces troops replied to Chief Stinson's challenge in their standard, cold-blooded monotone, counting down from cylinder twelve to number one.

"All cylinders ready, pilot."

"Roger, Chief, drop on auto, 15 seconds to execute." Rocky watched the counter tick off the last few seconds, waiting for the distinctive sound of compressed air blasting the cylinders into the nearly airless void.

"All away clean, sir."

"Roger, Chief. Designator in the green, getting a green light on the feedback from the homers."

After getting confirmation from the DZ that all the troops had landed safely, the C-31 headed west toward the low-level routes to Little Rock, gobbling up the miles at MACH 2. The drop went smoothly, with the powered heavy equipment platforms touching down smoothly on the temporary landing strip laid out by the ALCE folks. Wings deployed from the bottom of each platform after release. They contained micro-jet engines and a guidance system that "flew" the platform to the landing strip. No more smashed-up piles of scrap metal after a bad drop, thought Rocky.

"Roger, tower, Race 11 requesting an automated PAR, followed by a MLS, blast shield deployed approach to a full stop."

Listening to the almost human sounding voice tell him they were on course, on glideslope, Rocky couldn't believe the Air Force actually used to have real people sit at a radar scope and do this stuff. What a waste of manpower. Anyway, I'll be glad to get this one over. Lucy said she'd fix some of my favorite spinach lasagna tonight.

"Roger ground, Race 11 taxiing to parking, spot 13. After landing check complete," Rocky said as the blast shields finished retracting. "Nice approach and landing, Don. Doing a landing on the CRT is no big deal, just follow the needles. The biggest problem for most pilots is the lack of peripheral vision, but you did great. Now, let's get this thing parked and call it a day."

"Engine shutdown check," said Don as he punched the button on his console next to the sidestick controller to engage the parking brake.

"Roger, parking brake."

"Set."

"Ground Obstacle Monitoring and Evasive Radar."

"Off."

"Computer faults and anomalies."

"Race 11, command post."

"Command post, Race 11." Now what thought Rocky.

"Sorry, Race 11. We need you to taxi to spot 23. Fuels needs to work on the liquid hydrogen pit on spot 13. We forgot to tell you earlier."

As they taxied, Rocky kept looking at the clock on his auxiliary CRT. Lucy is really going to be upset. She probably spent 15 minutes making dinner and I'm late already.

"You ever parked over here, Rocky?" asked Don. "Doesn't look like there's any excess room between these hangars."

"No, just taxied out. Should be plenty of room though."

"You clear over there?" asked Don.

"Yeah, plenty of room, keep turning. Looks like we'll clear the corner of that hangar, besides, the GOMER will keep us . . . wait a minute, it's turned . . . CRUNCH . . . off. STOP!!!"

As he watched the fire truck hose down the burning wing, Rocky was thankful all three of them had safely evacuated the aircraft. Seeing his beautiful airplane, and probably his career, go up in smoke, the words of Captain Wil Wright kept going endlessly through his mind.

"Don't relinquish your command...You have the ultimate responsibility. . . ."

The Hardest Part

Remaining vigilant.

"Crew, five minutes to taxi."

"Thanks, Nav" replied Mac MacKenzie. "Okay Co, let's get this show on the road. I understand Cargo 15 has a problem with his FSAS. Maintenance has already isolated the problem, so hopefully they will be able to taxi with us."

"I'll keep on top of it, Pilot. Be advised we're having trouble getting our clearance. ATC is having difficulty figuring out what we're trying to do today. I don't seem to be doing to good a job explaining it to them. If you'll

check in the flight on interplane, I'll talk to ground again."

"Can do. Tell ATC to consider it a three-part mission. First we'll fly as two, three-ship formations to Filrup AFB for onload. We'll be on the ground for about two hours, then we'll launch as a six-ship headed for Blagtout DZ. Two hours into that segment of the mission we'll cancel IFR and enter the low-level structure under VFR for 45 minutes. After our tactical route and drop, we'll reestablish ATC contact as a formation. Once we're back in ATC contact and stable at altitude, we'll let *them* coordinate a smooth transition to individual aircraft with separate clearances back to the FOB. Try not to dwell on the reasons, they may be unfamiliar with our concerns for tactical crew duty day and SKE versus VFR procedures."

"Good idea, that'll simplify my explanation and ought to clear up the confusion. You've got the formation on Victor One."

"You bet. How long to engine start, Nav? About a minute?"

"We're coming up on 30 seconds to start time now."

"Cargo 15, Lead. . . ."

"Go ahead, Lead."

"What's your status? Are you going to make taxi?"

"Affirmative. They're buttoning things up here now. Everything looks good on the scope so far."

"Clear right?"

"Roger sir, we're clear right."

"And we're clear to our left."

"Five . . . four . . . three . . . two . . . taxi time is now."

"And we're moving, crew. If you can, Nav, I'd appreciate it if you would position yourself at the left window, the scanner has the right one."

"Sure thing, Pilot. Those maintenance stands seem to be multiplying around here."

"Cargo 11 flight, ground. Hold short of the next intersection. Emergency in progress."

"Cargo 11, roger, holding short."

"Nav, Engineer. You're right. They've got a lot of work done lately. They're working their gluteals off getting these birds ready for this ORE."

"I have to agree with the engineer, Nav. These guys are working long shifts and doing a fine job, I'd say. The least we can do is accept the responsibility to cheerfully back them up on something as simple as whether the stands are clear of taxiways. As the AC, of course, I'm responsible for the aircraft. But every crewmember on this aircraft has a collateral responsibility to keep alert and help me watch for problem areas of any variety, and taxi hazards are no exception. It's just common sense we should exercise extra caution moving this huge, expensive airframe around the airfield."

"Well, we've got marshallers to help us out. Besides, our airfields were designed for aircraft movement. We can't doublecheck *everything*, Mac."

"You're both wrong and right, Co. *Some* of our airfields were designed for the C-141 to move around on. Most weren't; instead, the next best thing—flexible airfield planning—served as a guide to rework existing facilities to accommodate larger aircraft. This means that without rebuilding taxiways, parking areas, hangars, etc, they redesignated taxi routes, designed creative parking plans, and did the best they could with the facilities. On the second point, you're absolutely right. But no one is asking us to validate the accuracy of stressed taxiways, airfield gradients, runway alignments or the other myriad details necessary for every airfield. We are tasked, simply, to get the job done right, which requires we safeguard the aircraft. As far as taxiing is concerned, it doesn't require that much extra time or effort to be cautious, so it's foolish not to be. We can't afford to become lackadaisical, even during ground operations. It's the *routine* efforts that seem to be destroying the most resources lately. I strongly suspect aircrew complacency is at the heart of the matter."

"Cargo 11 flight, taxi into position and hold. Understand controlled departure time of 28 after the hour."

"That's affirmative. Cargo 11 is on to hold."

"Cargo 11, time now 26 and ½ after the hour. Wind 270° at 3. Cleared for takeoff. Switch to departure control. Squawk 4000."

"Cargo 11 cleared for takeoff. Switching freqs, squawking 4000. Good day . . . ."

"Nice flying, Pilot. You'd think you were born on that boom."

"Thanks. I'm a little surprised it turned out that well. It's been a while since I've done any serious AR. Now, a quick 30-minute flight and we'll call it a day, right Nav?"

"Thirty minutes is pretty close, but it feels more like three days."

"It was a great route and a superb drop, Nav. Thanks for the hard work."

"The whole crew worked together very well, Pilot. Even

a terrific nav can't do it all alone."

"Okay, let's get this beast home . . . ."

"Nice touchdown."

"Thanks, Co. Is ours the next turn off?"

"No. Better roll on out to the end, there's a lot of construction going on around here. We're going to parking spot Echo 4, so we'll head down taxiway 6 to the junction at Delta row, then cross that new area to Echo row."

"Okay. I'm turning off here. Please give ground a call with our intentions. Straight ahead now, right?"

"Yep. Just follow the yellow paint road and we're home free."

"I've never taxied through here before. I'd really appreciate some vigilant support in the windows . . . Nav, Scanner."

"No sweat, pilot. We'll do it just like before. I'll take the left window and the scanner will be in the right."

"I'm here now, Nav. Between us and the marshallers, this is what I'd call overkill."

"You can never be too careful, scanner. I really appreciate your help. I know we're all tired. It is 3:00 in the morning after all. Hey, is this the turn?"

"Must be, pilot. I've got your marshaller at 11:00. See her over by the forklift?"

"Yeah. There's another one off to the right. Do you see him, scanner?"

"Yes. He's motioning for a right turn now. I guess they want us to follow the line. Pretty innovative. I'd take her slow though."

"I plan to, Scanner. Here we go. No. Wait a minute. I don't think I like the looks of this. There just doesn't seem to be enough room here. Scanner, how close will we come to that telephone pole over there?"

"It looks a little close, but you should be okay. The marshaller is still signalling us to move."

"Well, I'd like to feel a lot more secure than I do now. The marshallers are separated by a considerable distance, I'm not sure I can watch both of them at once. Besides, like I said before we left, taxiing is a team effort. Scanner, how about deplaning and giving me a better reading than 'close.' You're cleared to open the door and depart the aircraft."

"Departing aircraft. Hey, that looks a lot closer than I thought, and there are some guy wires angling toward the aircraft. Good call, pilot. These wires would have made quite an impact on the right wing. Let's turn left, make a big circle and nose it in."

"Okay. That's more like it. Co, talk to ground and let them know we're not asleep out here, then call the ALCE and tell them we've got a problem with this parking area, it's not wide enough . . . ."

"Before leaving aircraft check complete. That was a pretty sharp call, Mac. So, what made you stop? I certainly didn't see the guy wires and everything looked okay to me, especially with the marshallers waving us on."

"Well, it was a combination of your earlier comments and an article in *TMF* on taxi mishaps."

"You trying to tell me *TMF* highlighted the problem at this airfield? I sure don't remember that article."

"No, but the article, kind of a generic taxi mishap prevention piece, made me stop and think about what is causing our recent mishaps. We've sure had our share of taxiing problems lately. The events, so far tonight, sure sounded like an excerpt right out of a mishap brief: A long day, tired crew, unfamiliar airfield—sounded like a set-up to me. Then when you mentioned this was a new area for everyone due to the construction, I figured there could be some problems. Like my Dad, Jordan, used to say, "Better safe than sorry because no matter where you go . . . there you are."

"I guess that's one of those geographical jokes, eh Mac?"

"Yeah, you had to be there."

"You always read *TMF*, Mac?"

"Every month. By the way, I've seen some of the stuff you've written, it was pretty good. I'll bet others have told you that too. You're about ready for a staff tour, aren't you? TMF is looking for associate editors. Why don't you give them a call?"

"Yeah. But they're looking for some wiz kid semipro author. I'd never make the grade, I was a philosophy major you know."

"Why not let *them* make the evaluation, Jim? If you're interested, give them a call. You might not get picked, but you won't know unless you apply. It's not one of those jobs they draft non-volunteers for, you know."

"Thanks, Mac. I'll think about it. As an associate editor I wouldn't have to worry about dinging a wingtip."

"If we all use common sense, *actively* clear the aircraft, and double check our information, none of us will." ★

Honorable Mention 1986 MAC

THE SKY IS BLUE

It's better to be on the ground wishing you were in the air, than in the air wishing you were on the ground.

by Major George E. Nolly
1403 MAS, Yokota AB, Japan

Flight Safety Writing Contest

I had just returned from my second tour in Vietnam flying fighters and was spring-loaded to the "go" mode. Now there I was, a "staff weenie" in a fighter wing at Kadena, getting checked out in the base flight T-39. Although I'd had a lot of quality flying experience in a short period of time, I was at the point where I didn't realize how little I knew.

This was our cross-country training flight, from Yokota to Osan to Kunsan, then return to Yokota. The mission was flawless, and we arrived at Kunsan ahead of schedule. My IP was also an ex-fighter pilot, a lieutenant colonel on the colonel promotion list. He showed me all there was to see at Kunsan (base ops and snack bar), and I was anxious to get back to civilization.

I zipped through the preflight and got down to engine start. But when I pressed the starter button, nothing happened. We rechecked the switches and tried again. Nothing. Transient Alert checked under the cowling and determined that the starter was bad on that engine.

Then I got a brilliant idea. I knew my IP would be impressed with my knowledge of aircraft systems, as well as my resourcefulness.

"Why don't we start the other engine, then fast taxi down the runway? When we get enough airspeed, we go to AIRSTART on the bad engine and get it lit. Then we can fly it back to Yokota to get it fixed."

The IP took a long draw on his cigarette, looked up at the sky and then levelled his gaze at me.

"What do you see when you look up?" he asked.

"Nothing," I replied, " just blue sky."

"That's right. The sky is blue, it's a beautiful day, and we're in perfect health. We don't have a mission that requires us to trade that for an uncertain future and needless risks. The base isn't under attack. We're not taking a critically ill patient to emergency surgery. We're not even carrying passengers. We're on a training mission, and we're stuck at a place that really doesn't have a lot to offer, but that's the breaks—no pun intended. It's better to be on the ground wishing you were in the air, than in the air wishing you were back on the ground."

That statement gave me a lot to think about. We spent the night at Kunsan, and by morning the airplane was fixed. We got back to Yokota uneventfully, and I went on to complete my training, and eventually, to become an IP myself. That mission to Kunsan happened 13 years ago, but it still stands out as one of the most memorable of my career. On that mission I learned a lot more than how to do a Form 70 for a T-39. I learned a valuable lesson about get-home-itis.

I discovered that being a steely-eyed fighter pilot, while great in certain areas, isn't the orientation you need to perform a peacetime airlift mission. Having a "can-do" attitude doesn't mean leaning on the bar with 6 Gs. It means getting the job done properly and safely, within prescribed limits and specifications, using the approved procedures. It also means using the appropriate channels to get the procedures changed if they are wrong.

In the past 13 years, I've been in several different types of flying operations and accumulated several thousand more flying hours. I can't remember ever seeing a mission that ended in tragedy because the pilot "wimped out" and cancelled. If the primary factors—the man, the machine, and the weather—aren't perfect, you simply get them fixed or abort the mission and wait till they are fixed. But I've seen a lot of missions that went wrong because of get-home-itis, or its variant, "get-the-mission-done-itis." I've seen instances when the crew thought the ops officer would probably want them to take a bad airplane because it would get the mission airborne, no matter what the cost. Well, I'm an ops officer, and I can tell you, it's not that way. There just aren't that many missions that can't wait till the weather gets better, or till the plane gets fixed. If the mission were that critical, you'd probably have both the ops officer and squadron commander breathing down your neck to see that it gets off on time; you'd probably be getting more supervision than you want.

There are undoubtedly dozens of times during an aviator's career when he/she is placed in an awkward position and must choose between taking an aircraft with minor problems or cancelling. You can almost always rationalize taking the airplane, but that's all it is, rationalizing. You will almost always feel bad if you scrub the mission. But that's the responsibility that goes with flying.

As a sort of postscript to the previous story, I found myself in the same theater of operations, in the same type aircraft, a dozen years later. I was at Nagoya, getting ready for a dusk takeoff to fly 20 minutes to Yokota, right at the end of my duty day. In fact, I would be landing 10 minutes shy of the limit. I *really* wanted to get home, having a list of personal commitments as long as my arm. When we started engines, the left generator wouldn't come on line. My copilot and I initially started down the primrose path of rationalization: it was only a short flight; we could get it fixed at Yokota, whereas it would be a bear to get parts to Nagoya; the weather was good, the sky was clear and blue . . . . Wait a minute! The sky is blue! What could I have been thinking of? What was so critical about this misson? My personal commitments could wait. We aborted. Once the abort decision was made, we stayed with the airplane to run the engines so our flight mechanic could troubleshoot to determine what parts we'd need. Ten minutes into the engine run, the right oil pressure went off-scale high, requiring an immediate shutdown. It hit me like a blast of cold air. Had I taken the airplane, we would have found ourselves ten minutes into the flight with an engine shutdown, no operating generators, running on battery power, at night. I shut down the airplane and stepped out into the gathering dusk. I looked up, *the sky was indeed blue.*

Major George E. Nolly (BS, USAFA; MS, University of Southern California), Operations Officer of the 1403 MAS, serving as a flight examiner in the C-21. After a brief stint as a flight officer with United Air Lines, Major Nolly resumed active duty in 1982. He is a graduate of Squadron Officer School, Air Command and Staff College, and National Defense University, and the recipient of the 1983 TAC Instructor Pilot of the Year Award in the O-2 aircraft..

It's easy to stop paying . . .

Attention—Part I

"Attention" is certainly a familiar word to any military person; however, to the military aviator, it takes on very special meanings and functions. Attention acts as a variable link between the pilot (or navigator, flight engineer, loadmaster, etc.) and his controls and displays. By using attention, the pilot samples the information in his environment and synchronizes his responses with the cues he picks out of innumerable available stimuli.

That sounds very cerebral, but what is attention? Attention is generally defined as "selective consciousness" but actually includes several related phenomena. At any one moment, humans are able to use only a limited amount of the sensory data available. We can concentrate on one sensory pattern, then on another, but we can't be aware of all sensory inputs at any one moment. Indeed, much of the sensory data collected is used to regulate bodily processes (e.g., blood pressure, temperature, etc.) and never reaches our consciousness at all.

Due to its selective nature, attention operates in a way which divides consciousness into two parts: focus and margin of attention. Focus relates to what we are paying attention to at the moment and is the clearest part of consciousness. Margin of attention is the remainder of our consciousness and is less clear to us.

What can be attended to?

Although external objects and events are probably the most important material for attention, it also operates on other things. We can pay attention to our own actions, even to the extent of ignoring new signals from the environment. We can pay heed to ideas or subjective feelings which may not be at all related to what is happening around us. Both daydreaming and creative thinking are examples of this. Some ideas push themselves back into the focus of our attention over and over again. Emotional problems and conflicts are notable examples of this, occupying our attention when it should be directed elsewhere.

Furthermore, we can pay attention to a complex object or event as a whole, to a small part of it, or to some abstract quality, such as color or shape. We can pay attention to a complex sound as a whole, to one note in a musical chord, to loudness, to pitch, or to the direction of the sound.

Span of Attention.

How much can we pay attention to at once? Obviously, this is an important question for aviators. Overloading an aviator's capacity for attention has caused more than one mishap. Attending to critical tasks at hand is crucial as our immediate focus of attention is surprisingly narrow. Various tests have shown that fewer than a dozen discrete objects can be comprehended simultaneously.

Another dimension of attention span that has some interest for aviators is concerned with the span for successively presented objects. For example, Morse Code must be presented in a certain rhythm to be interpreted correctly. The delivery rate of audio and visual stimuli is important: too fast a delivery rate causes blurring and running together. For example, a light flashed at a rate of 10 to 30 flashes per second produces a flickering sensation, but the flashes cannot be accurately counted. A series of 5 flashes may be perceived as 3 when the rate of light flashes is 10 per second, and as only 2 when the rate increases to 30 per second.

Division of Attention.

There seems to be no doubt all of us can do two or more things at once. We can all stand or walk while seeing, hearing, or using our hands. But these activities are basically integral parts of a single, total pattern. Is it possible to keep two entirely different tasks *simultaneously* in the focus of attention? For most of us, the answer is no. Since flying involves a number of different activities which have to run more or less together, and requires a pilot to sense and integrate diverse kinds of information while controlling an airplane, a look at how this is done will show us how we get to that point.

- **Overlearning.** Motor skills, e.g., walking, running, swimming, and adjusting a control stick, tend to become "automatized" with adequate practice. That is, they can be performed as part of the margin of attention, while the focus of attention is elsewhere.
- **Integration.** It's possible for two simple activities, which at first seem difficult to perform at once, to become integrated into one smooth performance. The old parlor trick of patting your head and rubbing your stomach at the same time is one example. Patting and rubbing are soon integrated until the direction or assignment of the hands is reversed. After some initial disruption caused by such changes, the two tasks become integrated again. However, the efficiency of dual

performances of this sort is usually lower than that of either task performed alone.

● **Rapid Shifting.** A third factor which assists in performing the complicated task of flying an airplane, despite the limited attention span, is the fact that you can shift your focus of attention very rapidly. Visually, you can scan an instrument panel and extract essential information from many instruments. You can attend to first one and then another of the on-going events which, together, constitute flying. Shifting attention can be applied both to information presented on displays, or instruments, and to outputs made on the controls.

Of course, there is a limit to the effectiveness of attention shifting in "real-time" control. It's possible to sample only a finite amount of information or make only a finite number of control actions in a fixed time interval. If the time interval is not within the tolerances demanded by the situation, the pilot will be overloaded.

What are some of the conditions which attract attention? Why does one person pay attention to a particular aspect of the environment, and another to an entirely different feature of the same environment? Why can your attention be suddenly diverted from a critically important flying task to some unimportant feature of the situation, or to some private worry? The answers can be found in a constantly changing pattern of individual and situational determiners of attention.

Individual Factors.

Every person lives in his or her own private world of hopes, fears, anxieties, needs, and interests. We struggle with what, to us at least, are the most important problems in the world. We develop a sensitivity for, and interest in, only selected portions of our world. We carry with us into any situation, including flying, individual determiners of attention: motivational patterns, personal conflicts, habitual interests, and our own interpretations of the requirements of our job.

Human motivation is an inherently complex subject, but as far as its influence on attention is concerned, it's sufficient to say that man has certain compelling physiological needs for food, water, air, companionship, and comfort. As a psychological organism, he has needs which often are as compelling: for social status, for social approval, for protection, enhancement of his concept of himself, and for self-realization. Unsatisfied biological drives and psychological motives impel man to look for something in the environment that will be satisfying. We'll pay attention to those features recognized as having a possibility for satisfying a need.

It's highly doubtful anyone has ever lived who did not have emotional conflicts and personal worries to deal with. If you took the time to observe yourself closely, you would find your attention is fixed on them for a portion of each day. They push their way into the focus of your attention when you should be concentrating on something else.

In the course of time and experience, each of us develops his or her own interest patterns. These are directly related to individual motivational patterns, but can be developed through practice. Aircrew members forming the habit of reading flight safety magazines is one example. Before flying became a part of his or her life, there was most likely very little interest or motivation to do so.

Closely related to habitual interests are the requirements of a job. Pilots are trained to attend to particularly important instruments at appropriate phases of a mission, and to look for subtle cues which inform them about the status of their aircraft, or of incipient danger. To the extent an individual learns his job, he also learns these attentional requirements, and will attempt to direct his attention in accordance with them.

Situational Factors Which Attract Attention.

Certain features of the environment are more distracting than others. These have been studied by psychologists, engineers, and advertisers who wish to design such practical items as effective warning lights and eye-catching advertisements. For years, the armed services have sought ways to remind pilots to put their wheels down for landing. These obviously represent attempts to attract attention by situational determiners. These include change, magnitude, novelty, and repetition of stimulus patterns.

In flying a particular type of airplane, you learn patterns of sound and motion characteristic of that aircraft. A new sound, or a change of an old one, will immediately attract your attention. This is true of any change in stimulus conditions that is large enough to be sensed, provided other stimuli competing for your attention do not have a stronger distracting power.

Large objects, bright lights, or loud sounds will divert your attention, at least momentarily. Whether you continue to pay attention to them will depend upon other factors, such as whether or not they are related to the task of the moment.

Novelty is closely related to change as a determiner of attention. Novelty represents a difference between the expected and the actual. It has a temporary distracting effect, but if novel stimulus patterns persist, they soon become commonplace and blend in with the rest of the immediate environment.

Repetition of stimuli effectively attracts attention. A blinking light has more attention value than a steady one. Repetition is closely related to movement and change. A blinking light that also moves is usually more effective than a stationary blinking light. As is the case of other determiners, repetition can lose its effectiveness, particularly if it follows a regular pattern. Once you learn the pattern, your attention may wander elsewhere.

Situational factors influence, and are influenced by, the individual factors discussed above. At any one moment, there usually are a number of different stimuli in a situation which could attract your attention. Which one you will attend to depends on the interaction among all these factors and their relative strengths at the moment.

Adapted from: Aviation Psychology

(*Editor's Note*—This is the first in a series of two articles dealing with the attention factor in flying. Next month we'll look at special requirements for attention in flying, failures of attention and their causes, and how to reduce attention failures.)

QUICKSTOPPERS

SEA GULL VS. C-5

A local proficiency sortie spelled disaster for a wayward sea gull and compressor damage for the number 3 engine of this C-5A. Everything seemed normal for the C-5 crew until the aircraft landed. During an engine-running crew change, the scanner from the enplaning crew observed what he thought were feathers on a stator vane of the number 3 engine. The aircraft commander wisely decided to taxi to parking and investigate the origin of said errant feathers to determine if their presence evidenced damage to the number 3 engine. Maintenance inspection of the engine revealed a five-inch crack in a second stage fan blade. Two adjacent blades were bent and each had two-inch longitudinal cracks. The make and model of the feathers indicated they were once attached to a sea gull that, no doubt, looked a whole lot better *before* its encounter with the compressor section. Weather at the time of the bird strike was IFR with 400 to 500-foot ceilings with less than two miles visibility, which makes us wonder whether *this* sea gull was instrument qualified.

QUICKSTOPPERS

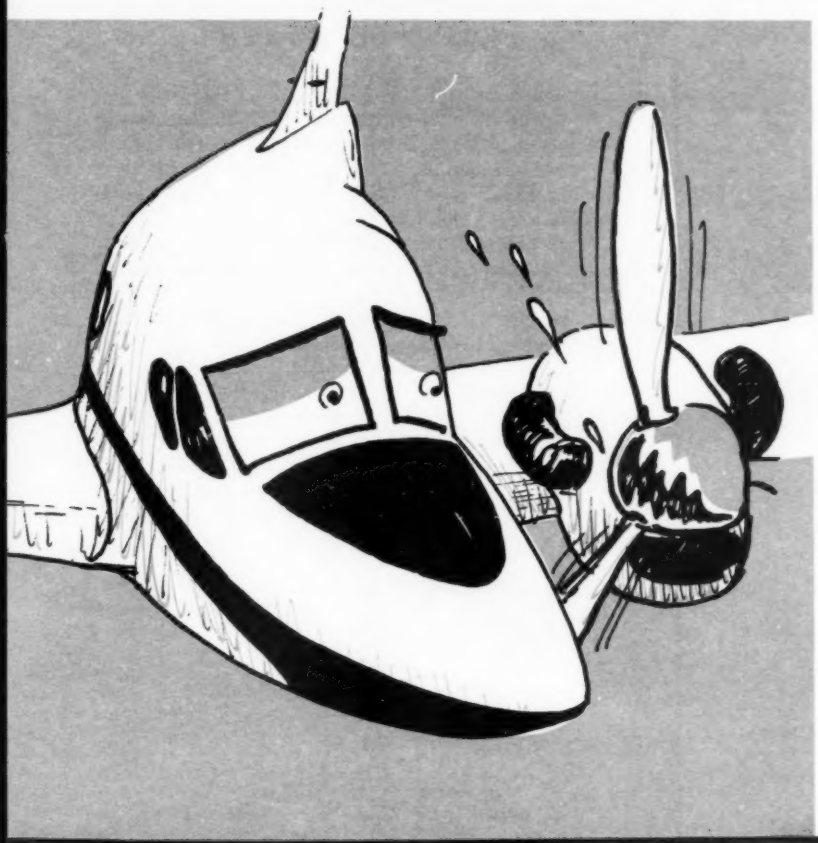
HOT STUFF

The H-3 engine start had been normal—that is until the fire guard noticed abnormally large flames leaping from the exhaust of the number 1 engine. The alert fire guard notified the crew and the AC shut down the aircraft. Simultaneously, the fire guard noticed the exhaust fire had ignited a puddle of fuel which accumulated in one of the hand holds below the exhaust cowling. The fire guard extinguished this fire using a nearby HALON fire extinguisher. The crew escaped uninjured and the helicopter suffered only minor burns.

Post-shutdown maintenance inspection revealed the combustion drain line was clogged with carbon and the emergency throttle control box was worn. The worn throttle control box allowed the emergency fuel control to intermittently stay open even though the control lever was closed. This, along with the clogged drain line, allowed fuel to pool in the combustion section which subsequently ignited. In addition to fixing the emergency fuel control box and drain line blockage, corrective action also included inspecting other unit aircraft for similar problems. Maintainers initiated AFTO Form 22 action to require inspection of the two components during phase inspections.

ROLLBACK REVISITED

The C-21 was on a routine mission climbing through FL 280 when the number 2 engine N1 decreased from approximately 95 percent to 71 percent. This was accompanied by illumination of the fuel computer light. ITT was approximately 810°C. The crew promptly ran the appropriate checklist. In fact, the crew made seven attempts to reset the fuel computer. Finally, after 40 minutes at cruise, they were successful and the engine operated normally for the remainder of the mission. Post flight inspection of the fuel computer by Glasco maintenance and factory reps failed to reveal the reason for the malfunction, so the computer was sent to the factory for further testing. The cause of the failure in the fuel computer which commanded the engine rollback was listed as "undetermined."



FUELISH LEAK

After passing through FL 260, the aircraft commander of this C-12 noticed fluid coming from the number 1 engine. The fluid was draining from the weep hole on the front inboard side of the engine; however, all instrument indications were normal. The AC leveled the aircraft at FL 270 to further investigate the leak. After level off, the visible leak appeared to stop and the crew elected to continue the mission. As they reestablished their climb to flight plan altitude, the leak reappeared. The AC shut the engine down, declared an emergency, and returned to departure base. Landing was uneventful.

Post flight investigation revealed the fluid *was* fuel that was leaking through the six o'clock position of the fuel flow divider. The cause of the leak appeared to be faulty O-ring seals that prematurely failed after only 52 flight hours. Both O-ring seals were removed and replaced.

NO THUNDERSTORM REQUIRED

It wasn't 30 seconds after entering an area of light to moderate turbulence and precip, when things got *real* interesting for the crew of this Hercules. The crew was flying a local trainer at 8,000 feet, with an OAT of +7°C. Without warning the aircraft was struck by lightning. No thunderstorm activity was forecast or present at the time of the occurence and another unit aircraft, which transited the area a few minutes earlier, reported no similar problem. Post flight inspection of the radome revealed a 6 to 10-inch vertical burn area with a 2-foot radius of external delamination. This one just goes to prove that thunderstorms aren't the *only* place you can encounter lightning.

Quick Stoppers

HOT STICK!

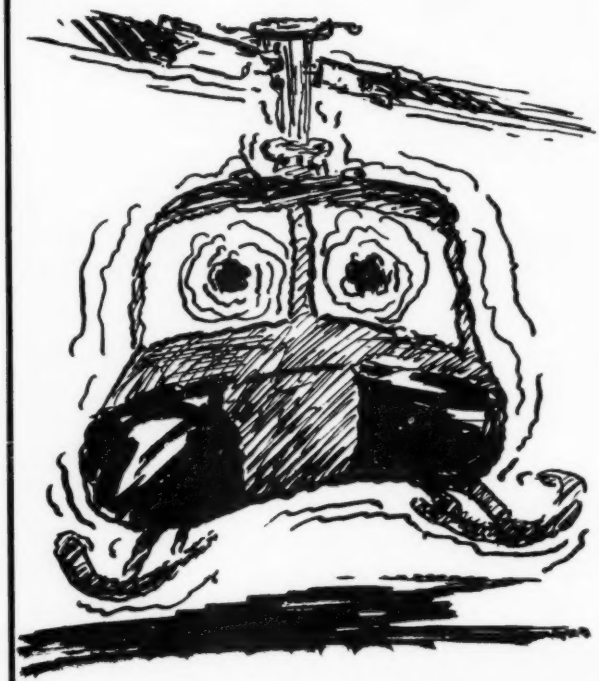
This Starlifter pilot began his mission feeling fine. He'd slept for seven hours prior to reporting for the mission, which helped make the first day of the trip uneventful. The pilot entered crew rest at 1900Z and ate a normal lunch and dinner. The pilot reported his water intake was normal but he had experienced difficulty sleeping that night. This resulted in only three hours of shut-eye.

The pilot began day two of the mission at 0800Z. He ate breakfast, flight planned, and helped upload cargo until departure at 1200Z. At 1400Z he ate a hot meal and took a 2-to-3 hour nap in the crew bunk. During the remainder of the six-hour flight, the crew transited two en route stops with no unusual stress encountered. However, during the final en route stop, the mishap pilot stated he sat on the hot parking ramp for 90 minutes while the aircraft was being refueled. During this time, he ate some pizza and drank about two quarts of water. Subsequently, he felt tired and dehydrated and had a headache. The aircraft encountered moderate turbulence during the final mission leg, causing the pilot some discomfort. About 90 minutes from blocks, the pilot said he felt so weak and nauseated he had to lie down. He was replaced by a qualified first pilot and promptly slept for 20 minutes after which he woke feeling worse and vomited. The mission finally ended at about 0500Z. The flight surgeon's evaluation of this incident indicated the nausea and vomiting were probably caused by fatigue and dehydration.

PILLOW BLOCK PERIL

After almost an hour of routine training, this Huey was on downwind leg of the traffic pattern. Suddenly, the crew felt a severe high frequency vibration. The alert instructor immediately initiated a minimum power descent, landed on a paved access road, and requested the tower coordinate crash support. Upon touchdown, the IP rotated the throttle off. The aircraft's drivetrain *immediately seized* and the crew successfully egressed the aircraft, uninjured.

After the IP confirmed no post landing fire was present, he and the flight engineer removed the left transmission cowling. They found smoke coming from the pillow block, which had failed. It turns out the pillow block, though rated for 1,000 hours of service, failed at little more than 158 hours. Technicians at Warner Robins ALC determined that published pillow block installation procedures contain errors which may result in misalignment. This could lead to premature or catastrophic failure of the component. Positive and immediate steps were taken to correct the tech data.



AFTER DEADLINES

MAC UNITS RESCUE 34 ABOARD NORWEGIAN SHIP—Military Airlift Command units played key roles in the rescue of 34 people on board a burning ship in the Gulf of Mexico.

Units from Eglin AFB, Tyndall AFB, and Hurlburt Field, Florida, together with the Coast Guard, assisted in the recovery of people on board the seismographic research vessel, the GECO-Alpha.

The distressed vessel was first spotted by an F-15 pilot from the 33rd Tactical Fighter Wing, one of four flying over the Gulf during a routine training mission. The pilot observed the boat burning and people on board donning life vests. He relayed this information to the 33rd TFW command post. The F-15 flight remained in the area to direct rescue aircraft until they had to RTB for fuel.

An HC-130 and a UH-60 helicopter from Eglin's 55 Aerospace Rescue and Recovery Squadron, along with a CH-3 helicopter from Detachment 5, 39 Aerospace Rescue and Recovery Wing at Tyndall AFB, Florida responded to the crippled vessel. The crew of the HC-130 performed duties as the on-scene commander and dropped survival equipment to people in the water, while the H-60 and CH-3 effected the recovery of 19 people.

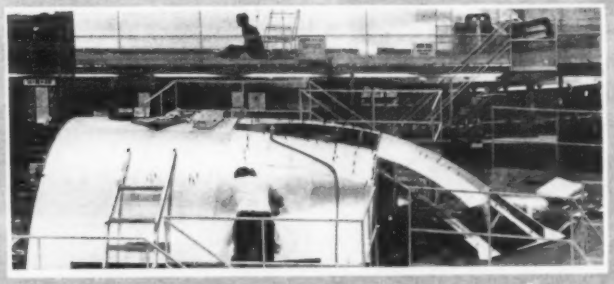
A MH-53 helicopter from the 20th Special Operations Squadron, Hurlburt Field Florida, assisted by recovering pararescue personnel deployed to assist the survivors. The survivors said they were very thankful to all those involved in the rescue.

LAST BUT NOT LEAST—Due to an administrative error, TSgt Benjamin L. Lucas was excluded from the Excellence in Airmanship award nomination printed in the January 1987 TMF. Sergeant Lucas' contribution to the successful emergency landing of a C-5A that experienced a nose wheel malfunction on 16 August 1986 deserves special recognition. Though this comes a little late, it's timely to remember that the best is always saved until last. Well done, TSgt Lucas, from the staff at TMF.

17TH C-5B TAKES SHAPE AT LOCKHEED-GEORGIA—Assembly operations for the 17th C-5B Galaxy military transport are well under way. According to C-5B Assembly Manager Jim Haygood, this aircraft will be delivered to the U.S. Air Force in June, 1987.

"The 17th C-5B represents a third of the 50 new 'B' models we currently are manufacturing for the Air Force; however, 14 are in varying stages of assembly throughout the plant," said Haygood.

Nine C-5Bs are presently in service with Military Airlift Command. Altus, Dover, and Travis Air Force Bases have received the new aircraft. Under Lockheed's contract, the 50th "B" model is scheduled for delivery during the first quarter of 1989.



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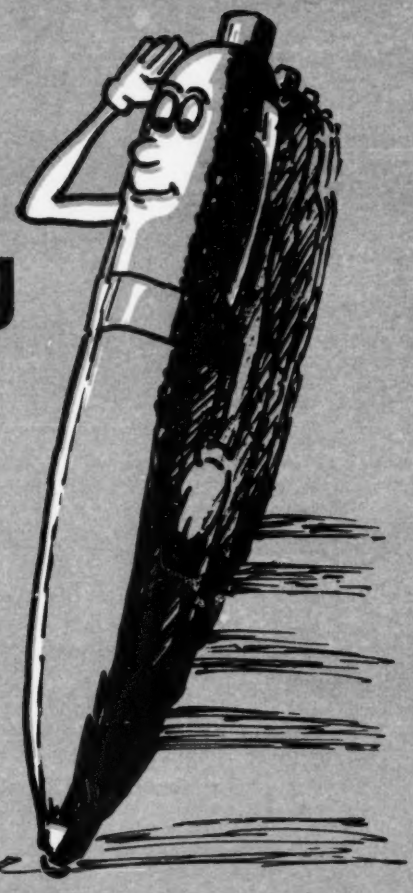
We're looking for a few good pens.



for The MAC Flyer

We're looking for the kind of officers who stand out, in a professional sense of course, to fill two vacancies our departing associate editors will create. We need proud, efficient, clever, intelligent, handsome/beautiful, well-spoken, creative, thorough, informed, and enthusiastic individuals who possess superb writing skills. That's right, we're lowering our standards. We know we can't *really* replace the editors we now have. Sometimes though, you just have to move on, and so it is with our current modest authors (who'd undoubtedly be Pulitzer winners except for GPO restrictions), both of whom edited this ad. We'll have positions available in May and July of 1987 for two captains and/or junior majors. Flight safety experience is a plus; a sense of humor is required; modesty is optional. Before concluding you haven't a chance of qualifying, remember: a journalism or public affairs background *isn't* a requirement (though it certainly won't disqualify you). Check through a few issues of *TMF* and you'll see we write just the way we talk (and we're working on improving the way we talk). This could be your big break! If you're even remotely interested (not to imply the kind of tour this is), give Major Weinzierl, Supervising Editor, a call at AV 576-3534/5542.